Claims

1. A method of optimizing a command sequence for a UAV to accomplish mission objectives, comprising the steps of:

(a) simulating the performance of an initial command sequence by a UAV in a simulated environment, resulting in a simulated mission outcome;

(b) modifying the command sequence of said mission;

(c) simulating the performance of said modified command sequence by a UAV in said simulated environment, resulting in another simulated mission outcome;

(d) iteratively performing steps (b) and (c) to optimize the simulated mission outcome;

(e) selecting the one or more command sequences based in part upon which command sequences produce an optimal simulated mission outcome; and

(f) encoding each selected command sequence into an algorithmic active packet.

2. The method of optimizing a command sequence for a UAV according to claim 1, wherein modifying the command sequence comprises using one of a genetic algorithm technique and a neural network technique.

3. The method of optimizing a command sequence for a UAV according to claim 2, wherein modifying the command sequence comprises using a genetic algorithm technique, and further wherein said genetic algorithm comprises a fitness function which measures the simulated outcome against mission objectives.

4. The method of optimizing a command sequence for a UAV according to claim 1, wherein the criteria for an optimal mission outcome include the compressability of the command sequence.

5. The method of optimizing a command sequence for a UAV according to claim 4, wherein the compressability of the command sequence is measured according to the Minimum Data Length theorem.

6. The method of optimizing a command sequence for a UAV according to claim 1, wherein step of encoding a

command sequence includes representing the commands as an algorithm supplemented by data.

7. The method of optimizing a command sequence for a UAV according to claim 6, wherein the encoded command sequence achieves an optimal compression as measured by the Minimum Data Length theorem.

8. A method of tracking an autonomous UAV during the performance of a pre-programmed active mission, comprising the steps of:

(a) simulating the performance of the active mission programmed into the UAV in a current simulation of the environment the UAV is operating in; and

(b) estimating the present position of the UAV based upon the results of the simulation.